

REMARKS

Claims 1-6, 8-21 are pending in the application. Claim 7 is herein cancelled. Claims 1-3, 5, 9-11 are herein amended. Claims 12-21 were withdrawn from consideration. No new matter has been presented.

Objection to the Specification

The Examiner alleged as follows:

The disclosure is objected to because of the following informalities:

page 12, line 21, the sigma symbol is incorrect and page 12, lines 23 and 33, the double "i" is incorrect in the formula as is the "Oi2". Page 13, lines 8 and 28; page 14, lines 4 and 31; page 15, lines 7, 14, 33, 34; the sigma symbol is incorrect. Page 16, lines 12-13, many of the compounds set forth are incorrect. The formula in line 1 on page 25 is in error. The sigma symbol in line 13 on page 25; page 31, line 10; page 32, line 9 and page 33, line 2 is incorrect. The formula in line 28 on page 28 is in error as is the formula on page 31, line 5. Applicant should carefully and completely review the entire specification for similar and additional errors and correct the same.

Applicant checked our original English specification but could not find such alleged informalities. The Examiner apparently referred to a specification which was a portion of old version of WO 2006/059794. However, the version international publication included errors which apparently were made on the side of International Bureau. Now, International Bureau posts a corrected version of WO 2006/059794, a copy of which is attached to this response. The corrected version of WO 2006/059794 does not have alleged informalities. The specification filed in the national stage application is of the same text of the corrected version of WO 2006/059794.

Thus, withdrawal of the objection is respectfully requested.

Rejections under 35 U.S.C. 102(a)

Claims 1-9 are rejected under 35 U.S.C. 102(a) as being anticipated by either Inda (US 2004/0106046) ('046).

It should be first noted that the inventor Mr. Inda of the cited Inda '046 is the same as the inventor of the present invention.

Inda '046 discloses a thin-film solid electrolyte produced by sputtering, or a solid electrolyte comprising a polymer obtained by coating a slurry **comprising an organic binder** and inorganic solid electrolyte powder and then drying but **does not disclose** a solid electrolyte which is made of **sintered powder** as in the present invention. Inda '046 relates to a lithium ion secondary battery comprising a thin-film solid electrolyte and, in this battery, the solid electrolyte can have a thin-film of **20 μm or below** by coating the solid electrolyte directly on the electrode.

In producing a lithium ion secondary battery in Inda '046, however, a completed solid electrolyte is not used from the initial stage of assembly of the battery but a precursor material of the solid electrolyte must be initially formed on an electrode and then it must be dried or subjected to heat treatment. Accordingly, it is not possible in Inda '046 to produce a completed solid electrolyte prior to the assembly of a battery and assembly such completed solid electrolyte with the electrode and thereby produce the battery efficiently.

In contrast, the present invention enables to produce and handle a solid electrolyte itself independently from assembly of a battery, thus, the solid electrolyte can be produced in a desired shape or size.

The Examiner also points out in Item 5 that paragraphs 0022 and 0026 of Inda '046 discloses that lithium ion conductive glass-ceramic powder is sintered by using Li_3PO_4 as a binder

and an organic substance is not included. However, Inda '046 refers in these paragraphs to a sputtering target for producing a solid electrolyte and does not refer to the solid electrolyte itself.

In the process of sputtering a target material to form a solid electrolyte in the form of a film, Li component is reduced by evaporation. Therefore, unless Li_3PO_4 is added in a relatively large amount, the formed solid electrolyte will not perform the function as described in the example of Inda '046.

In the present invention, for achieving high lithium ion conductivity and also high strength, the amount of the lithium ion conductive inorganic substance powder is within a range from 50 mass % to 98 mass %. Inda '046 fails to disclose the amount of the lithium ion conductive inorganic substance powder.

Thus, Inda '046 does not teach or suggest, among other things, “solid electrolyte comprising **sintered inorganic substance powder** comprising a lithium ion conductive crystalline said sintered inorganic substance powder being in an amount within a range **from 50 mass % to 98 mass %**, wherein said solid electrolyte is substantially **free of an organic substance** and an electrolytic solution, and said solid electrolyte has a thickness of **25 μm or over**.”

For at least these reasons, claim 1 patentably distinguishes over Inda '046. Claims 2-6, 8 and 9, all directly or indirectly depending from claim 1, also patentably distinguish over Inda '046 for at least the same reasons.

Claims 1-4, 6-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Inda et al. (US 2003/0224244) ('244).

Inda '244 is directed to a technique according to which a carbon fiber layer is impregnated with an **electrolytic solution** to thereby improve electro-chemical junction between a solid electrolyte and an electrode. Inda '244 is entirely different art from the present invention which does not use an electrolytic solution at all. Inda '244 discloses lithium ion conductive glass-**ceramics in the form of bulk** (i.e., glass-ceramics which are produced by forming glass in the form of bulk and causing crystalline to precipitate in the glass by heat-treating the glass) but fails to disclose sintering inorganic substance powder comprising a lithium ion conductive crystalline.

For at least these reasons, claim 1 patentably distinguishes over Inda '244. Claims 2, 3, 6, 8 and 9, all directly or indirectly depending from claim 1, also patentably distinguish over Inda '244 for at least the same reasons.

Rejection under 35 U.S.C. 102(b)

Claims 1-4, 6, 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Fu (U.S. Patent No. 6,485,622) (Fu).

Fu also discloses lithium ion conductive glass-ceramics in the form of bulk, i.e., glass-ceramics which are produced by forming **glass in the form of bulk** and causing crystalline to precipitate in the glass by heat-treating the glass. Fu does not teach or suggest a “solid electrolyte comprising **sintering inorganic substance powder** comprising a lithium ion conductive crystalline.”

For at least these reasons, claim 1 patentably distinguishes over Fu. Claims 2-4, 6, and 8, directly or indirectly all depending from claim 1, also patentably distinguish over Fu for at least the same reasons.

Rejections under 35 U.S.C. 103(a)

Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being obvious over Fu.

As discussed above, claim 1 patentably distinguishes over Fu. Claims 10 and 11, depending from claim 1, also patentably distinguish over Fu for at least the same reasons.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being obvious over either '046 or '244, each taken in view of Fu.

As discussed above, claim 1 patentably distinguishes over Inda '046 or Inda '244, and Fu. Also, these references do not remedy the deficiencies of each other. For at least these reasons, claims 10 and 11, depending from claim 1, also patentably distinguish over Inda '046 or Inda '244, and Fu for at least the same reasons.

For these reasons, the present invention is not obvious from c Inda '046, Inda 244 and Fu either singly or in combination.

In view of the aforementioned amendments and accompanying remarks, Applicant submits that the claims, as herein amended, are in condition for allowance. Applicant requests such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

/Sadao Kinashi/

Sadao Kinashi
Attorney for Applicant
Registration No. 48,075
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

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Attachment: a copy of corrected version of WO 2006/059794